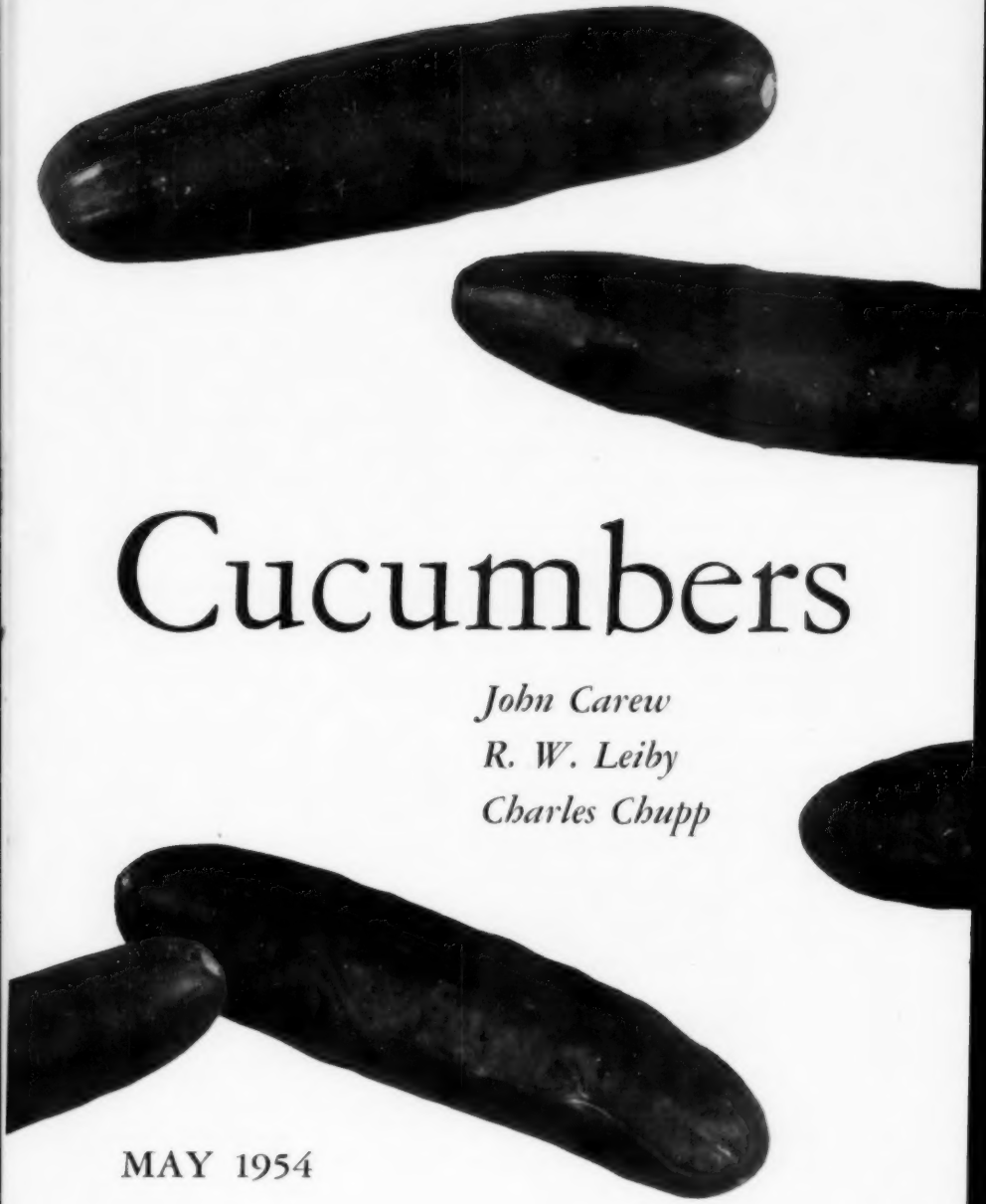
Cornell Extension Bulletin 917



Cucumbers

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Climate

Cucumbers can be successfully grown in most areas of New York. Although they are frost-sensitive and should not be planted before the average date of the last killing frost, you can pick them in approximately 60 days; thus, they are suited even to northernmost regions.

Soil

Plant cucumbers on sandy or sandy loam soil. Heavier soils, provided they are well drained, are also satisfactory.

Varieties

For slicing

Marketer is one of the best white-spined slicing types. Straight Eight is several days earlier than Marketer but has poorer external color. If mosaic is a problem, try Niagara. Burpee Hybrid, Surecrop Hybrid, and Sensation Hybrid have vigorous disease-resistant foliage and heavy yields; fruit color, however, is usually inferior to that of Marketer.

For pickling

Yorkstate Pickling and Ohio M.R. 17, similar mosaic-resistant varieties, are gradually replacing National Pickling. Double Yield is slightly earlier than most. Wisconsin S.R. 6 is highly resistant to scab or pox.

Planting

Cucumbers are usually seeded directly in the field, but they may be transplanted from bands or pots if you want extra early yields. Delay planting, unless under plant protectors, until the danger of frost is past. In upstate New York this is about May 25; on Long Island and in the lower Hudson Valley it is about May 10. The drill row method of planting is most common, with plants finally spaced from 10 to 12 inches apart in rows 6 feet apart. From 2 to 3 pounds of seed per acre are required.

Fertilizer and Lime

Cucumbers are not particularly sensitive to acid soils but should have a pH between 5.5 and 6.8. Dolomitic or high magnesium lime is preferred.

The quantity of fertilizer best applied depends on the past fertilizer practices and the type of soil.

For soils adequately limed and fertilized heavily for several years:

On sandy soils: from 500 to 750 pounds of 10–10–10 broadcast after plowing

On loam soils: from 500 to 750 pounds of 10–10–10 with one-half broadcast before plowing and one-half after plowing

For soils adequately limed but not previously heavily fertilized

On sandy soils: from 600 to 900 pounds of 8–16–16 broadcast after plowing

On loam soils: from 600 to 900 pounds of 8-16-8, with one-half broadcast before and one-half after plowing

In most seasons, sidedress with 100 pounds per acre of ammonium nitrate or its equivalent when the plants are about one month old. More economical high-analysis fertilizers have been recommended; if they are unobtainable, use substitute grades (for example, 1000 pounds of 5–10–10 for 600 pounds of 8–16–16).

When only small quantities of fertilizers are to be used, apply it in bands along the row.

Weed Control

Frequent shallow cultivation is best. A new weed killer, phthalamic acid, sold commercially as ALANAP-1, appears promising and can be recommended for use on a *trial basis*. Use it at the rate of 2 to 4 pounds per acre of land area. Use the lower rate on sandy soils. ALANAP is effective only against germinating weed seedlings. Apply it, therefore, within a few days after planting seed and before the crop is up. If you spray when the soil surface is dry, results will be poor unless there is rain or you irrigate within a day or two. Follow label directions carefully.

Diseases

The more serious diseases of cucumbers are damping-off, bacterial wilt, anthracnose, scab or pox, mosaic, downy mildew, Alternaria leaf blight, and powdery mildew. The five most important control measures are to:

1. Rotate with other than vine crops.

2. Destroy mosaic-carrying weed hosts, such as bur cucumber, catnip, mortherwort, pokeberry, ground cherry, plantain, flowering spurge, and white cockle.

3. Keep the plants away from such flowers as petunia, gladiolus, phlox,

Figure 1. Cankers on cucumber fruit caused by scab or pox

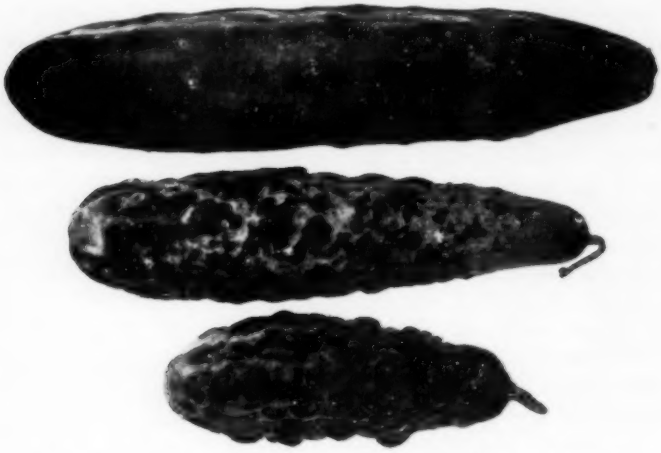

Figure 2. Mottled and roughened cucumbers infected with mosaic

hollyhock, and from such crops as tobacco, soybean, and old alfalfa fields.

4. Treat the seed with corrosive sublimate and, then just before planting, dust with an appropriate chemical dust.

5. Spray or dust both in the seedbed and in the field.

Seed treatment consists of dipping the seed for 5 minutes in corrosive sublimate (bichloride), 1 tablet in each pint of water, or 1 ounce of the powder in 7½ gallons of water. First dissolve the powder in hot water, then dilute to 7½ gallons with cool water. Do not have the temperature below 65° F. nor above 85° F. Tie the seed in cheesecloth or thin bags, and dip them for 5 minutes, then rinse the seed carefully and let it dry. Many seed companies sell seed that is already treated. Just before planting, dust the seed lightly with Dow 9B, Captan, Arasan, Spergon, or Semesan. One or more of these materials can be bought locally anywhere in the State.

Cucumber plants are susceptible to lime injury; therefore, never apply spray or dust that contains lime. It is better to use a cucumber-melon dust which you can usually buy in various sized bags and which consists of:

Ziram or Captan	10 pounds
Powdered cube root (5 per cent rotenone)	20 pounds
Flour	10 pounds
Talc	60 pounds

Apply the dust as soon as the plants break through the ground. Make a second application four days later, then apply it once a week as long as the plants require protection. If beetles are no longer a problem, you may use the dust without rotenone.

Some commercial growers dust or spray throughout the entire picking season.

If you wish to use a spray, you may apply 2 pounds of Ziram (includes Zerlate, Opalate, and many other commercial names), Captan, or Manzate in each 100 gallons of water (1 ounce in 3 gallons) with rotenone and a sticker-spreader. Be sure the pressure is no greater than 250 pounds.

Rarely is downy mildew present. Neither Ziram nor Captan is effective against this fungus. As soon as it is reported in the State, the fungicide should be changed to copper-talc dust or 4 pounds of one of the copper-oxychlorides in 100 gallons of water (2 ounces in 3 gallons) with a sticker-spreader such as Orthol-K. If you have used Manzate early in the season, you may continue its use, but at 5-day intervals while mildew weather persists.

If powdery mildew, which appears like talc sprinkled on the upper surface of the leaf, becomes destructive, mix 25 pounds of finely divided dusting sulfur with 75 pounds of the above copper-talc dust, and make one or two weekly applications while the weather is warm and sunny. A new material, Mildex or Karathane, is especially effective against powdery mildew. Mix 1 ounce of the material in each 20 gallons of water and apply it as a spray as soon as mildew begins to show; if necessary, make a second application a week later. Do not apply Mildex when the plants are wet or just before a rain. The application of this material on melons has been approved by the Pure Foods and Drug Office but has not yet been sanctioned for cucumbers that are to be sold.

Eradicate all mosaic-carrying weeds around the cucumber planting. If only a small area is involved, dig these out by hand. Where this is impractical, use a combination of 2,4-D and 2,4,5-T commonly referred to as "brushkiller." Because this is harmful to most plants and may persist for as long as a month or two, spray only after all the plants have been removed from the field. Follow a similar weed eradication program on roadways or hedgerows adjacent to cucumber fields.

Insects

One or more of several kinds of insects may affect cucumber seed and the vines. Seed corn maggots may prevent the seed from sprouting when planted outdoors. The striped cucumber beetle and aphids may attack the foliage.

Maggots

Maggots are a likely pest of the sprouting seed when it is planted before June 15 and especially if it is planted in soil rich in manure or humus. You can control maggots by incorporating from 30 to 40 pounds of 5 per cent chlordane dust per acre in the top 2 or 3 inches of soil. In a garden planting, a teaspoonful of this chlordane dust worked in the soil around each hill when the seed is planted prevents maggot injury to the seed.

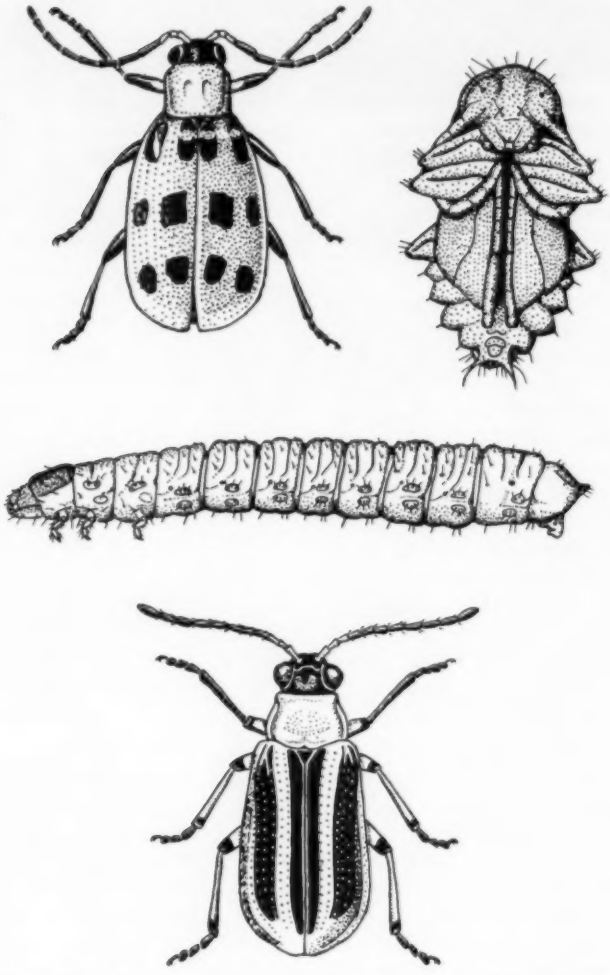

Figure 3. Cucumber beetles: spotted cucumber beetle (left), pupa (right), and its worm-like lana (center). Below: striped cucumber beetle

Striped cucumber beetle

The striped cucumber beetle chews on the leaves of cucumber plants, especially when the plants are small. A 1 per cent rotenone dust, or a 1 per cent parathion dust, or a 4 per cent malathion dust is effective against the beetle. Rotenone is safer to use but has no lasting effect and it gives a slower kill. Parathion and malathion give a quicker and somewhat lasting kill of the beetles. Use parathion with care as it is toxic to humans when inhaled or when it comes in contact with one's body. Follow the label instructions closely. You may need to make dust treatments at the rate of 30 pounds per acre weekly or when the insects are present.

Sprays that can be used are 4 pounds of 4 per cent wettable rotenone powder per 100 gallons of water, or 1 pint of 15 per cent parathion emulsion, or 1 quart of 50 per cent malathion emulsion per 100 gallons of water.

Aphids or plant lice

Aphids or plant lice occasionally appear on the lower surface of the leaves in destructive numbers. They can be controlled by the same dusts and sprays as advised for the striped cucumber beetle. Nozzles of dust or spray machines need to be directed to the lower surface of the leaves since that is where the aphids feed.

Common Problems

Wind injury

Cucumbers, like other cucurbits, seem particularly sensitive to damage by wind. Plants have white bleached-out areas on stems and leaves on the windward side.

Mishapen friut

Mishapen, curved fruit, or fruit with constrictions at the stem end can be due both to heredity or environment. Certain weather conditions, not clearly defined, favor formation of these fruits. Bacterial wilt and mosaic also cause them. Strains and varieties vary in the number of these culls produced.

Harvesting

The most desirable slicing cucumber has a diameter slightly more than 2 inches and is at least 6 inches long. Pick frequently, every two or three days in hot weather, to obtain a fancy pack and to prevent growth of jumbos. Picking is commonly done by hand into baskets. A few growers have developed harvesters that provide moving belts onto which pickers may place the fruit or platforms on which pickers may ride as they harvest. The state average yield is 144 bushels; a good grower ought to expect 300.

Harvest pickles according to size, depending on market demands. U.S. No. 1 pickles do not exceed 3½ inches in length. You may need to harvest daily in hot weather. Remove from the vines all pickles that have passed marketable size.

Marketing

Slicing cucumbers are often run over tables where they are graded, brushed, and waxed. Several types of waxes with different methods of applying them are available.

Cucumbers may be stored for seven to ten days at 45° to 50°F. under conditions of high humidity.

Sources of Additional Information

Cucumber Growing. Farmers Bulletin 1563. U.S. Dept. Agr., Washington, D.C.

The Control of Diseases and Insects Affecting Vegetable Crops. Cornell Extension Bulletin 206. New York State College of Agriculture, Cornell University, Ithaca, New York.

Vegetable production textbooks.

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